Task 1.1 **Establish a baseline**

Task 1.1.2 Frame the problem

What is this task about?

This task is about reflecting on the baseline evidence and your understanding of your system to frame the set of climate-related problems against which you will formulate your Climate Resilient Strategy. This task involves defining and specifying an initial common, agreed set of problem statements and decision-making frameworks (i.e. assessment and evaluation criteria) against which to formulate the climate adaptation pathways and innovation portfolio. This task specifies these problems further, and includes:
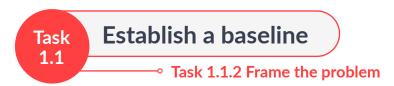
- Reviewing the gathered evidence and the insights derived from it (Task 1.1.1) as well as your system understanding (Task 1.2.1)

- Formulating an initial set of prioritised problem or **challenge statements**◊

- Formulating a set of initial **planning objectives**◊ to both directly address climate risks and build broad-based system resilience

- Identifying an initial set of appropriate performance metrics for each of the planning objectives against which to assess and evaluate the performance of the Climate Resilience Strategy

- Specifying the key **boundary conditions**◊ for the Climate Resilience Strategy.

The task should be undertaken in close collaboration with stakeholders to ensure that the problem framing for the Climate Resilience Strategy reflects their collective interests, values, perspectives, and priorities. It should also be completed in parallel and in exchanges with the activities to gather evidence (Task 1.1.1) and establish the shared understanding of the relevant systems, actors and resources (Tasks 1.2.1 and 1.2.2).

Insight: You will collaboratively develop and refine your problem framing in parallel with other tasks in Phase 1 (Prepare the ground), ensuring alignment with your baseline evidence (Task 1.1.1), system understanding (Task 1.2.1), and risk assessment (Task 1.3.1). This problem framing will serve as a foundation that is further developed in Phase 2 (Build a shared vision), where it will evolve based on the shared vision (Task 2.3.1), theory of change (Task 2.4.1), and portfolio of available adaptation options (Task 3.1.1). It will also continuously integrate the expectations and priorities of stakeholders engaged across these tasks, with future revisions taking place as part of the ongoing process in subsequent phases.

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Why is it important?

Properly framing and specifying your problem helps clarify what your region aims to achieve with its Climate Resilience Strategy and sets the agenda for the rest of the Regional Resilience Journey. This process moves regional discussions beyond vague ambitions (e.g., 'build regional climate resilience,' 'address heat stress,' or 'ensure water security') by establishing concrete goals and measurable performance criteria. Agreeing on these goals and criteria with stakeholders is crucial for building legitimacy for the Climate Resilience Strategy and for mobilising and engaging relevant actors in later Regional Resilience Journey tasks. Additionally, the formulation of adaptation pathways (Task 3.2.1) depends on risk-based problem framings that address how a system and its climate risks may evolve over time, as well as the uncertainties related to the magnitude and timing of these changes.

How can you complete it?

The actions described in this task are intended to be co-developed by a core group of representatives from the region, including different sectors and expertise. This group should perform the following actions during a series of (preferably in-person) workshops.

- **Review the gathered evidence (Task 1.1.1) and system understanding (Task 1.2.1):** Reflect on both the gathered evidence base, as well as your understanding of the underlying causes, direct and indirect effects of the problems in your region to derive current adaptation and resilience needs for your region and how these are expected to develop in the future.

- **Formulate a prioritised initial set of problem or challenge statements:** Summarise your adaptation and resilience needs into clear, concrete problem or challenge statements to be addressed by the Climate Resilience Strategy, and identify the key community systems most affected. If multiple climate-related challenges exist, prioritise them based on their expected impacts on the relevant key community systems.

- **Formulate an initial set of planning objectives:** Based on the problem statements, specify an initial set of planning objectives to address the identified climate risks and build resilience in the prioritised key community systems. Objectives that directly address climate risks serve as primary adaptation objectives. It is against these objectives that the performance of the existing system, any adaptation options and the adaptation pathways are assessed. Any additional objectives, such as job creation, improving public health, social well-being, and economic development, serve as secondary resilience objectives. These are used to evaluate the relative performance of the alternative climate adaptation pathways and the innovation portfolio in building broad-based system resilience.

- **Identify an initial set of appropriate performance metrics:** For each planning objective, specify appropriate (preferably quantitative) metrics with which to assess the relative performance of the adaptation options, pathways and innovation actions. Also specify any key acceptable performance limits or thresholds to be considered in the analysis.

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- **Specify key boundary conditions for the Climate Resilience Strategy:** Specify the set of boundary conditions to constrain the ensuing risk and option assessments and other planning processes during the Regional Resilience Journey, including:
  - Strategic planning time horizon for the Climate Resilience Strategy
  - Prioritised uncertain drivers of risk and resilience to be confronted and managed by the Climate Resilience Strategy
  - Geographical extent of the system
  - Other system boundaries and constraints, e.g., institutional, socioeconomic, environmental, financial.

Further detailed technical guidance on completing this task, along with useful tools and methods can be found in *Appendix D3*.

What are key inputs for the task?

- Self-assessment of capabilities (Task 1.3.2)

- Evidence gathered on baseline conditions in your region (Task 1.1.1)

- Understanding of your system (Task 1.2.1), particularly in relation to prioritised system boundary conditions, uncertain drivers of risk and resilience, and the system vulnerabilities, opportunities, effects and impacts to be addressed, etc.

- Identified stakeholders from Task 1.2.2 to be incorporated into the problem framing.

- Later iterations of the problem framing also need to consider findings from other tasks, including: the risk assessment (Task 1.3.1), capability assessment (Task 1.3.2), shared vision (Task 2.3.1), theory of change (Task 2.4.1), options identification and assessment (Tasks 3.1.1 & 3.1.2), as well as in response to any stakeholder engagement activities in other tasks that serve to modify the overarching planning objectives.
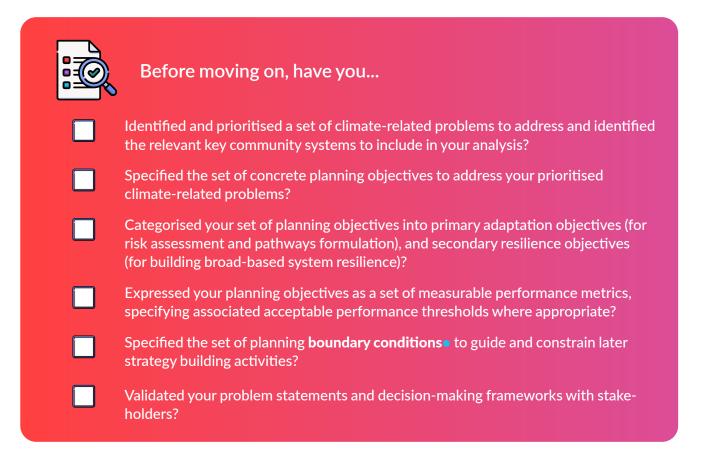
What are the expected outputs?

The key output from this task is the explicit, agreed set of initial problem statements, planning objectives (i.e. identified primary adaptation objectives and secondary resilience objectives) and associated performance metrics against which to formulate your Climate Resilience Strategy.

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Before moving on, have you...

☐ Identified and prioritised a set of climate-related problems to address and identified the relevant key community systems to include in your analysis?

☐ Specified the set of concrete planning objectives to address your prioritised climate-related problems?

☐ Categorised your set of planning objectives into primary adaptation objectives (for risk assessment and pathways formulation), and secondary resilience objectives (for building broad-based system resilience)?

☐ Expressed your planning objectives as a set of measurable performance metrics, specifying associated acceptable performance thresholds where appropriate?

☐ Specified the set of planning **boundary conditions**● to guide and constrain later strategy building activities?

☐ Validated your problem statements and decision-making frameworks with stakeholders?

D3. Task 1.1.2 Frame the problem – Technical guidance on how to complete

How can you complete this task?

The actions described in this task are intended to be co-developed by a core group of representatives from the region, including different sectors and expertise. This group should perform the following actions during a series of (preferably in-person) workshops.

Review the gathered evidence (Task 1.1.1) and system understanding (Task 1.2.1):

- **Reflect on the gathered evidence base,** as well as your understanding of the underlying causes, direct and indirect effects of the problems in your region. Derive your current adaptation and resilience needs and how these are expected to develop in the future. Potential questions to guide your analysis include:
  - What does the gathered evidence tell you about the climate-related problems that your region is facing (and/or may be facing in the future)?
  - Do you expect risks to change? To what extent could change occur? When does the evidence suggest these risks could be experienced?
  - How do these problems manifest in the affected KCSs? Where are your principal impacts experienced? What are these impacts?
  - When multiple problems are identified, is there one overarching problem/driver that leads to the majority of issues?
  - Can multiple sector-/KCS-specific problems be merged into one broader problem/driver?

Formulate a prioritised initial set of problem or challenge statements⬦

- **Summarise and express your adaptation and resilience needs** as a set of concrete problems or challenge statements to be addressed by the Climate Resilience Strategy. Express your challenges in a simple and accessible way, connecting to both your region's existing problems as well as their potential evolution in the future. Example problem statements include:
  - Mitigate the impacts of regional flood risks until 2100
  - Mitigate risks to critical road transport corridors until 2050
  - Mitigate the public health impacts of regional heat stress until 2050
- **Identify the KCSs which are most affected by these challenges.** Using your systems map (Task 1.2.1), identify how risks from climate hazards propagate through your integrated regional system. Do not forget to account for cascading indirect impacts, which may be more significant than the direct impacts. Identify the KCSs you think will be most affected (i.e. generate the greatest impacts). This helps to define the set of initial boundary conditions for your Climate Resilience Strategy (i.e., which KCSs to include, which to exclude, etc.).
- In the case of multiple climate-related challenges, **prioritise your challenges according to their expected impacts** across the relevant KCS. It may be that you will not be able to address all challenges within your Climate Resilience Strategy and investment plan. Select those (prioritised) challenges to carry forward with you for the remainder of the Regional Resilience Journey. This prioritisation will be a qualitative assessment, but in later iterations of your problem framing, more quantitative information can be introduced from, e.g. the climate risk assessment.

D3. Task 1.1.2 Frame the problem – Technical guidance on how to complete

Formulate an initial set of planning objectives:

- **Use the set of problem statements to specify an initial set of planning objectives** to both address the prioritised climate risks and build broad-based system resilience in the prioritised KCS. Your objectives should be both achievable and measurable and should clearly relate to the climate related challenge being addressed.

- **Focus first on defining those objectives which directly address impacts for your identified climate risks.** These will become your set of primary adaptation objectives. It is against these objectives that you assess the performance of your system in your climate risk assessment (Task 1.3.1). You also use these objectives to assess the risk-reduction performance of your adaptation options and formulate pathways (Task 3.2.1). Hence, it is already useful to be thinking about the types of adaptation options you might use to address your climate-related problems and confirm that their relative performance can be assessed against the specified adaptation objectives. Similarly, you should ensure that your objectives are sensitive to the prioritised (uncertain) drivers of risk (used to specify the climate risk scenarios in Task 1.3.1). If either of these are not the case, you may need to reframe your objectives to be more in line with the options and risk drivers you will likely wish to assess. The more specific you can be in relation to these objectives, the better.

We strongly recommend keeping the number of adaptation objectives to a minimum, as each separate objective will likely demand its own risk assessment, options assessment and set of adaptation pathways to include in your final Climate Resilience Strategy.

Example primary adaptation objectives include:
  - Reduce 1:25 year flood damages to acceptable levels and maintain these until at least 2100, while accommodating a growing population.
  - Reduce expected annual damage to critical road transport corridors to acceptable levels. Maintain these levels until at least 2050, while accommodating a 25-50% increase in traffic volumes.
  - Reduce annual number of heat-related deaths to below acceptable limits and maintain these until at least 2050, while accommodating a growing population.

- **Focus next on defining an initial more general set of (related) objectives to improve your region's overall system resilience.** You use the performance against these secondary resilience objectives (e.g., job creation, improvement in public health, improvement in social well-being, economic development, etc.) to evaluate the relative performance of the alternative adaptation pathways and innovation portfolio (Tasks 3.2.2 & 3.2.3). These secondary objectives will unlikely be assessed quantitively during the strategy formulation process, such that you do not need to specify these to the same extent as your adaptation objectives. (This is not to say that their performance will not be quantifiably monitored during implementation of the Climate Resilience Strategy.) As these objectives relate more to the broader aspects of your shared vision (Task 2.3.1) and theory of change (Task 2.4.1), the initial set defined in this task will need to be revised during Phase 2 of the Regional Resilience Journey. Example secondary resilience objectives include:
- Increase biodiversity within aquatic ecosystems.
- Improve the quality of the urban environment to improve liveability, connectivity, and social connectedness.
- Reduce regional unemployment by stimulating growth in targeted economic sectors.

D3. Task 1.1.2 Frame the problem – Technical guidance on how to complete

Identify an initial set of appropriate performance metrics:

- For each of the planning objectives, specify appropriate metrics with which to measure the relative performance of the adaptation options, pathways and innovation actions. Metrics should be S.M.A.R.T. (specific, measurable, achievable, relevant, and timely).

  - For your **primary adaptation objectives,** quantifiable metrics are preferred, particularly if you are going to implement a quantitative or semi-quantitative risk assessment. It is against these metrics that any computational modelling studies should generate results. Also specify any key (existing) adaptation limits or thresholds to constrain your risk analyses and indicate instances of unacceptable system performance. Examples for the above listed adaptation objectives could include:
  - Number of properties impacted in a 1:25 year flood
  - Expected annual direct flood damages for 1:25 year flood
  - Expected annual indirect economic impacts for 1:25 year flood (flood duration)
  - Expected annual direct road damages from various climate hazards (landslides, floods, coastal inundation)
  - Expected annual indirect economic impacts of road closures due to climate hazards (recovery duration)
  - Heat stress index
  - Proportion of population 65+ years
  - Number of annual heat-related deaths

- For your **secondary resilience objectives**, either quantifiable or qualifiable metrics are possible. Quantifiable metrics will be useful to inform the development of your monitoring plan during Phase 3 (Task 3.3.2), however for the purposes of strategy formulation, more qualifiable metrics will suffice, provided the relative performance of the different adaptation options and innovation actions can be evaluated. Note that you may choose to leave specification of your secondary resilience metrics until the visioning (Task 2.3.1) and theory of change (Task 2.4.1) tasks during Phase 2, once your set of planning objectives have been finalised. Examples for the above listed resilience objectives could include:

  - Number of indicator species
  - Populations for each indicator species
  - Water quality parameters (e.g. BOD, DO, pH, E.coli, Heavy metals, etc.)
  - Length of connected (public) green space
  - Area of (public) green space
  - Proportion of population unemployed
  - Proportion of population underemployed

D3. Task 1.1.2 Frame the problem – Technical guidance on how to complete

Specify the key boundary conditions for the Climate Resilience Strategy:

- Specify the set of remaining boundary conditions for your prioritised challenges and planning objectives to constrain the subsequent climate risk assessment and other planning processes during the Regional Resilience Journey, including:

  - Strategic planning time horizon. Here the preference is to consider a time horizon that will account for relevant long-term climate risks. E.g. for SLR, you might like to consider a time horizon of 100+ years. For extreme precipitation and heat, stressing the effectiveness of a strategy against an initial time horizon of 25-50 years may be sufficient given other socioeconomic factors may be more dominant drivers of risk.
  - Prioritised uncertainties to be actively confronted and managed by the Climate Resilience Strategy, e.g. drivers of climate risk, drivers of regional economic performance, drivers impacting ecological health, etc. (using outputs from Task 1.2.1)
  - Geographical extent of the system and other system boundaries (e.g. institutional, socioeconomic, etc., using outputs from Task 1.2.1).

Other system boundaries and constraints, e.g., institutional, socioeconomic, environmental, financial.

Supporting resources:

Useful tools
- 21 ecological and social dimensions – Doughnut Economics framework
- The Climate Resilience Measurement for Communities (CRMC)
- European Climate Data Explorer
- JRC PESETA IV
- World Bank's Climate Change Knowledge Portal
- ThinkHazard.org
- ResourceWatch Dashboards
- ClimateAnalytics's Climate Impact Explorer
- ARCH Resilience Assessment Dashboard RAD
- COACCH Climate Change Impact Scenario Explorer